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ABSTRACT

A discussion is provided of the use of computers in writing instruction at the community and junior college level. After providing an account of the introduction of computer technology into the author's personal and professional life, the paper outlines ways in which the computer can be used to teach writing skills. Following an analysis of the mechanical and intellectual process of writing, the low-level resources of the computer are reviewed with respect to applications such as running tutorials with students performing drill exercises on the computer. Next, mid-level computer resources are discussed, with focus on word processing programs, adventure games, and self-help services provided by national computer networks. Word processing programs are described in terms of their potential for developing students' enthusiasm for writing, revising work, and improving spelling. Adventure games, such as Zork, which require the precise use of language, a large amount of reading, and logical thinking, are discussed as ways to give students facility with skills that are equally applicable to writing, e.g., organizing ideas, using specific and concrete detail, and working sequentially. This section concludes with an examination of the services available through Compuserve to assist in the writing program. Finally, educational software programs using the high-level abilities of the computer are discussed. Descriptions are provided of the features of WRITER'S WORKBENCH and WANDAH, with particular focus on their use for assessing text abstractness, identifying risky constructions, and providing editorial comments. (HB)

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COMPUTER RESOURCES FOR WRITING

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COMPUTER RESOURCES FOR WRITING

I am glad to be here with you today, in part because talking to colleagues is always a renewing experience, but also because this event presents me with the opportunity to practise what I have been advocating, to all who would listen, for more than two years. That is, the skills of writing, as they relate to effective communication, are more efficiently, more intimately, and more widely accomplished with a computer than without.

Education, in general, can be understood most simply as a state of transition. It is that cusp, that balancing moment, between ignorance and knowledge, between unskilled and skilled, and sometimes (if we are fortunate) between knowledge and wisdom. When confronted with the puzzled, chagrined, or frustrated looks of my students as, for the first (but not the only or last) time, they encounter a new idea or are challenged to acquire a new skill, I have always announced, sometimes pontifically, "Aha! Now you know--true education is learning how little you know."

I was first introduced to computers four years ago when a mathematician insisted on playing for me a two-part Bach Invention on an Apple computer. While that seemed an enjoyable diversion to, I was more intrigued with a text game he had, called "Hammurabi," in which I

was granted a ten-year rule of a kingdom. The object of the game was to demonstrate my enlightened governing abilities by ordering the planting, harvesting, and storage of grain, by directing the acquisition or sale of land, and by keeping my subjects sufficiently fed. Needless to say, despite repeated attempts, I always starved more people than I fed, a result of my obviously-lacking husbandry skills and my sheer ignorance of the mathematical ratios needed to balance projected and available foodstuffs.

Interestingly enough, the game fascinated me not for the skills it purported to develop (arithmetic and logical in nature), but for its use of language as it interacted with me. My disastrous administration of the mythical kingdom was frequently commented on by the computer, with such choice phrases as "bumbler," "fink," and "incompetent." I found myself--perhaps masochistically--playing that game with the intention of losing, just so I could elicit from that machine the beeps, whistles, and name-calling that amused me so much.

And so, that was the beginning of my fascination. I marveled at a machine, hardly bigger than my typewriter, which could manipulate language. More astonishing, I found myself in an *interpersonal* relationship with a machine, a relationship that was intimate enough for me to allow myself to be subjected to that machine's verbal abuse and, in fact, to be actually amused, rather than insulted, with its candid assessment of my administrative skill. Within months, my vocabulary began to include typical computerese: "user-friendly" and "interface." Almost naturally, I began *again* to be "educated," to find out how little I knew.

That was only the beginning. I have referred to education,

generically, as a cusp, a time or condition between two, more concrete and specific states of being. The computer, as we now popularly know it, is also at a median and mediating moment in its existence. In their book, *Fire in the Valley: The Making of the Personal Computer*, Paul Frieberger and Michael Swaine explain that the forerunner of our microcomputer first appeared in 1974, a mere ten years ago. In this brief decade, we have seen the technology of computer science grow more sophisticated. What was once a machine for mathematicians, utilized for its speed of calculations, is now a machine for *everyone*, a machine whose pupose is limited only by the software it uses.

The point I am making is that the computer, while superficially similar to other technology in our lives (from the telephone and Cuisinart to the slide projector and tachistoscope), is profoundly different at heart. In the past, we have invented and used machines to accomplish specific tasks that, essentially, made modern life "easier." The computer, in contrast, is a machine that is *not* task-specific; even at this early stage of its development (a precocious ten-year-old), the most truthful response to the question, "What can it do?" is a Socratic (or, Nietzschean, if you will), "What do you *want* it to do?"

What *I* wanted it to do, once I recovered from my initial infatuation with the computer (an infatuation which, by the way, included playing arcade and adventure games until my eyes stung with fatigue, learning to program in two languages, fooling around with graphics and music, and manipulating both spreadsheets and databases), was for it to assist me in my profession, not unlike a robotic gofer.

Having served briefly as a division-level administrator, I first utilized the computer in the most pedestrian ways imaginable (no correspondence between "pedestrian" and "administrator" intended): I created schedules for the semester; I wrote memos; and I devised objective testing programs. This was fine; as long as the input was correct, the output was, too. Besides, it all looked so beautiful, and it demonstrated my facility with hardware.

But how did all of this relate to teaching? In particular, how did it relate to teaching *writing* or *composition*? In fact, it didn't. Yes, of course, my class rosters were now on a database; and yes, my syllabi were generated with word-processing programs that allowed me not only to proportionately-space and underline, but also to italicize, to bold-face, and to produce a host of other typesetting dreams, but how had my teaching changed?

It took awhile, I now admit, for me to understand that in the same way that the computer had changed me, it could change my students. Perhaps I was unwilling to so easily yield my status in the classroom as "knowledge-giver" to a machine. But, once I realized that my relationship to the computer was as student-to-teacher, and simultaneously acknowledged the exhilarating feeling which that relationship gave me, I also came to understand how my role as a teacher (not "knowledge-giver" but "education facilitator") coud best be served by sharing with my students my discovery and my enthusiasm.

Teaching writing, although traditionally relegated to the so-called "English teacher," and only recently discussed (and debated, I might add) as the domain of *all* faculty, regardless of discipline, in such projects as Writing Across the Curriculum, is best

described as "illegitimate parenthood;" i.e., who is to assume responsibility for nurturing writing skill in our students? We have all learned to write (perhaps not willingly, and often, not well), and we all acknowledge that writing is symbolic representation of language, a way of formalizing, codifying, and making permanent those sounds that issue from our vocal apparatus. If speech is what socializes us through commonality of language, writing civilizes us by allowing us history (knowledge of the past) and philosophy (speculation about our values). Because writing reflects degrees of sophistication in our society, revealing us to our descendents, it carries wth it the responsibility for transmitting knowledge or information, and the privilege of being the vehicle for expressing our creativity and imagination. As the purpose of education may be to move, figuratively, from darkness to light, from ignorance to knowledge to wisdom, so writing has been perceived as the vehicle or instrument of this intellectual journey.

When writing passes from skill to art is not our concern; at the junior and community college level, where our student body is uniquely motivated as well as uniquely oriented to skill-acquisition, we have perceived the teaching of writing as the teaching of a skill or, more appropriately, a set of skills. We only hope that by the time the student leaves us, after 45 hours of instruction, those skills are learned competently. (Unfortunately, we cannot guarantee, as the recently-popular tv commercial for welding school, that "you get to keep your set of tools on graduation.")

It may seem to you that I've come far afield, but you will be rewarded soon, I hope, with the relationship of writing to the

computer. Like a set of tools, in which some, like the hammer, are simpler than others, like the plane, and in which a varying degree of expertise must be applied, so the skills of writing may be discretely separated--from the purely mechanical, such as correct spelling or capitalization, to the purely intellectual, such as clarity, coherence, and unity. When viewed in this way, learning to write is a cumulative activity.

The reality, however, is that writing is a holistic process, one in which both the mechanical and intellectual elements are brought into play simultaneously. The teacher of writing, confronted with this complexity, must discover pedagogic methods that address both the precision of correctness and the breadth of inventive discovery. Within the environment of a classroom, which disallows the one-on-one approach, it is a task characterized by too-much-to-do in too-little-time with too-many-people. The writing instructor, then, is often frustrated by what seems a relatively impossible situation: to deal with student writing in both the specific and the general, to run the risk of boring twenty-five to fifty per cent of his/her students while teaching the other fifty per cent the correct use of commas, to find and develop lecture material for a single class in which writing abilities may run the gamut from barely literate to relatively fluent, and (most difficult of all) to discover ways to assure each of those twenty or twenty-five students that his or her writing has had careful, individual attention. Add the final problem: we seldom teach fewer than two writing sections per semester.

Enter the computer. This all-purpose gizmo provides the instructor with the most valuable of assets in teaching writing: time.

Further, the computer is a relatively indiscriminate assistant, for it will simulate functions already relegated to other educational audio-visuals as well as perform, on command, some mighty feats of its own, not the least of which is to imitate or simulate some of the functions of the actual teacher. In short, the computer's resorcefulness may be viewed as multifaceted, for it does both menial and extraordinary work without complaint, and it actually develops in the student, albeit residually, a heightened consciousness about using language.

First, there are what I prefer to call the low-level resources of the computer. These are tasks for which other educational machines and strategies have been invented, but which the computer may perform as well. These tasks do not even begin to tap the computer's awesome potential, but they are the tasks for which, alas, the computer is presently (or, has been most recently) used. For instance, with an elementary knowledge of a computer language such as BASIC or PASCAL, an instructor may program a computer to run a tutorial--a lesson or module in some aspect of the mechanics of writing. A commercial program like *SuperPilot* allows the teacher to create such tutorials without any knowledge of computer programming. So, for the ten students you have who know litte or nothing about the use of the apostrophe, you can create a tutorial, assign those students to review the material, and have the computer drill them on their comprehension. Easier still, your institution could purchase such programs commercially. At least 60% of the **software** now on the market for Composition-related instruction is this combination of mini-lesson and drill(sometimes referred to as "dialogue" software); all of the

software is expensive, and very little of it is worthwhile.

I do not criticize the software for what it does, for much of it is fairly well-written and certainly accomplishes what it is advertised to do. If you do not wish to spend one moment of the precious 45 hours you have with a Composition class in simple drill work or grammatical rules, these programs are readily available. But, so are programmed textbooks, audio cassettes with accompanying student workbooks, reading machines, and even slide sets. Why use a sophisticated machine like a computer to do the work of its mechanical inferiors?

Such a question is only partially rhetorical. Certainly, if you or your students already work with such supplements as programmed texts, you know that these materials have limited value. First, there is the problem of getting the student to the material; then, there is little we can do to ensure that, after the student has been led to the material, he or she will work with it in the ways intended or derive from it the expected benefit. Few students, in my experience, have approached solitary drill work with enthusiasm; they do what they must, but unless the drilling is intensive, the benefit is short-lived and, unfortunately, transient. The computer, even when used for such low-level tasks, opens possibilities which no programmed text or other educational hardware can offer. The computer can be assigned personality.

The best of the low-level programs used on computers are of the kind exemplified by *SuperPilot*, created for the Apple. In essence, *SuperPilot* provides the technological expertise by which the instructor's lecture material and exercises may be displayed on

the computer. Once a lesson is created and saved to disk, it may be recalled by the user at any time, read or reviewed, and the accompanying exercises (of the short-answer variety) completed and either saved to disk or printed out as hardcopy for evaluation by the instructor. The unique aspect of such a program is that it allows the teacher the opportunity to create his or her original material which can be made relevant to the particular character of a class, can address the problems of a specific class, and can utilize examples or exercises which draw on the local knowledge and experience of the students. Leading students to such material is seldom difficult, for they (like us) are naturally curious about the computer and their own ability to manipulate it. That they will use the material in the ways intended is guaranteed by the actual format of the program itself as well as by the nature of the computer itself. In contrast to the programmed text, for example, a tutorial created with *SuperPilot* could be made to reiterate material if student input indicates poor or inadequate comprehension. A computer will not allow, if so directed, "peeking" at answers. What is saved to disk becomes a permanent record of the student's work, not impossible but certainly difficult to tamper with. Finally, however, the retention rate seems not to be appreciably longer or better, but this is a problem of the nature of drill work and exercises, not a problem inherent with or resolved by the computer.

Of greater value to the teacher of writing are materials that more fully exploit the power of the computer. Interestingly enough, software in this category is seldom created with the ostensible purpose of improving a student's writing skills. I call these

materials "mid-level" resources and, happily, as the computer has become more accessible to more people, these programs are more widely distributed and available. Some of this software has already been introduced into education, although its value has not been widely understood in the composition class, not yet. Some of the software is marketed exclusively for its entertainment value and, like television, it may be some time before educators incorporate it into pedagogy. In general, these mid-level resources are word-processor programs, adventure games, and self-help services provided on national computer networks.

Much has been written about the wonders and marvels of word processing. At least once a year, every computer magazine on the market features a profile of a famous writer who has discovered word processing (Isaac Asimov and Jimmy Carter, to name just two). But, these are always professional and literate people, those for whom the creation of a sentence, a paragraph, or an essay is not a tribulation but a joy. That is, they are folks for whom language is already a wondrous thing. They are not our students, for whom writing is, at best, a chore and, at worst, real agony. They are not our students, to whom language is less a wonder than a necessary evil. What can word processing do for our students who often lack the most essential skills to begin with?

As I've said, no word processing program was created for the Composition class. However, such programs are extremely useful to the struggling writer because they provide an environment for writing that is best described as comfortable. For the inexperienced writer, "comfortable" can mean a great deal and go a long way in motivating

and reinforcing in the student a real sense of accomplishment. From the most elementary word processing programs, such as *Bank Street Writer*, to the most sophisticated, such as *AppleWriter* or *WordStar*, initial student reactions are invariably the same: interest and curiosity followed by willingness and enthusiasm. By the time these responses fade, the student has acquired some valuable skills--structural manipulation of ideas, careful attention to presentation, and proofreading. These skills are learned naturally and unconsciously and ,if practised frequently over a short period of time, tend to be retained permanently in the student's repertoire of writing skills.

When first introduced to word processing, the student is kept busy learning the very elementary skill of manipulating the program to do as commanded: sequences of keystrokes for editing need to be learned, menus of options must be mastered, and even the physical act of watching a video monitor rather than a sheet of paper must be adapted to. With so much else to attend to, the creating of a sentence, a paragraph, or an essay seems minor; the student writes more freely, typing away with uncharacteristic abandon, following a blinking cursor across the monitor. When the student is finished, and much of the material has scrolled up and off the screen, there is, invariably, the desire to see what he or she has created. A few more keystrokes, and a hardcopy comes literally rolling off the printer. This is a crucial moment for the student writer, because whether the composition was handwritten, typed, or computer-generated (i.e., "keyboarded"), it now has a permanence, a life of its own.

In our modern world, that which is handwritten is psychologically

less formal and less important than that which is typed. By extension, typed copy is neither so important nor significant as that which is electronically produced. Electronic production gives the student's written work a greater professional look. Interestingly enough, this has beneficial consequences. No student I have observed or spoken with is unable to resist either proofreading or editing an electronically-produced manuscript. That is, the sense of ownership is fostered, and with that, a greater attention to the details of production. Further, both the speed and format of word-processing makes proofreading and editing relatively simple tasks in themselves. But, most important of all, *revising* in word processing does not mean *rewriting*.

Physical ease and efficiency, then, is one of the concrete values of writing with a computer. Students are reluctant, at best, to revise their work when they realize that any revision, and particularly extensive revision, means copying over the written material to "clean paper." Even if students are willing to type their copy, revising ultimately means retyping. For the student writer, to whom the act of composing is often inordinately time-consuming, and frequently difficult, rewriting or retyping seems a tedious, repetitive, and downright annoying job. If the student writer knows that proofreading and revision ultimately lead to such tedium, he or she will, consciously or not, ignore or short-circuit the creative process of editing to avoid the mechanical process of copying. Work produced on the computer, in contrast, does not entail such "penalty" for the student. Proofreading and revising are, themselves, simple; rewriting is accomplished by the machine, not the student, thus

eliminating the mechanical task for the student. Purely on the level of practicality, the computer assists the student insofar as the time previously allotted to producing clean copy is now spent in the more important task of revision.

On a deeper and more meaningful level, however, the computer is also a powerful instrument of change, for it radically alters the emotional relationship which the student has with his or her written work. In the professional world of business and industry, as well as in the academic world, we psychologically assess the value of written materials not only by content but also by structure and presentation. Neither the writer nor the audience puts much stock or attaches much importance in what is written on the lined page torn out of a spiral notebook. But, when that material is computer-generated, looking for all intents and purposes as if it were ready for publication, both writer and reader sit up and take notice. In particular, the student writer is impressed with the sheer elegance of the presentation and, I suspect, delightfully surprised by the realization that he or she is actually the author. And, such a realization of authorship or ownership is exactly the point, for it encourages and even compels the student to revise. Whatever the psychological forces at work, it soon becomes evident that electronically-printed copy produces a reaction in student writers not unlike that of the new-car owner who fusses over each smudge on the windows and each speck of dirt on the hood. So the student writer attends to grammatical, spelling, and even structural revisions. The student writer is no longer faced with the seemingly insurmountable task of creating a "perfect" composition, but is presented, instead, with the more manageable task of maintaining

the pristine "perfection" of what a machine produced for him or her, and under his or her control.

Finally, word processing programs also perform, either alone or in combination with other programs, some operations which inadvertently teach skills or convey information ordinarily assigned to the instructor of writing. One of these is the word processor's "Search" or "Find" function. Intended to assist the user in locating certain words or phrases in a document, this function can be used to discover how often a word or phrase is used (or overused). That is, unnecessary repetition may be avoided through the use of the Search and its complementary Replace functions. At least one word processing program for the Apple, *PFS: **Write***, will perform, within the Search function, an actual count of the number of times a word or phrase is used, as well as a total count of the number of words in a document.

The other operation performed within the context of word processing is a spelling checker. These are separate programs, created for interfacing with an already-purchased word processing package. Spelling checkers contain large databases (better known as dictionaries on disk) against which words in a document are checked. The more sophisticated spelling checkers provide options to the user: to approve each spelling correction beforehand, or to give the machine complete control of correcting errors. Less powerful programs simply proofread the copy, highlight the misspelled words, and wait to be commanded to make the correction. Many an English instructor I have talked to has recoiled in horror at such programs, bemoaning the assumption that access to a spelling checker program is the pied piper of a generation of students who will have no spelling skills at all.

We must see, first of all, that such a scenario is truly an assumption, not a fact. Yet, even if it were true, which is highly unlikely, what harm is there in the loss? For what is really lost is not the skill of spelling correctly, but the knowledge of how to spell. And, as teachers of writing, we seldom teach either the skill or the knowledge, except in general references to linguistic representation, but are more concerned with getting our students to recognize their need to "look up words" in dictionaries. If the computer can spot the misspelling before it reaches us and make the student aware of it by simply asking "Do you want me to make the correction?", then something positive has been accomplished. The student writer has been made consciously aware, has been assisted in recognition, of a weakness in writing. If this occurs frequently enough, it can reasonably be expected that the specific knowledge of how to correctly spell a specific word will eventually be learned.

Moreover, what is really important here is not so much *what* is learned -- even if it is, simply, that the student writer can't spell -- as *when* it is learned. That is, if all the student has learned is that he or she should rely on a spelling checker program, that knowledge is gained at the most propitious time: during the process of revision and drafting. It thus becomes an integral part of revising for the student. The alternative is, clearly, less appealing: that you, the reader, make corrections after the fact. Such a situation does not ultimately contribute to improved student writing, for such corrections after-the-fact are generally ignored (unless accompanied by threats of some sort), and they only place the instructor in an adversarial relationship with the student whereby we

are perceived not as facilitators suggesting improvements but as headhunters looking for mistakes. The computer, on the other hand, makes such corrections only at the request of the writer and without the specter of imposing a penalty for finding such errors. If we, as instructors, encourage or advocate the use of such programs, we reinforce for ourselves the role of benign editor, helper, and associate in our students' attempts to improve their writing.

While word processing and related programs are excellent resources for student writers in the revision and drafting stages, they lack the ability to help a student begin or continue to write. These skills -- getting started and developing ideas -- can be indirectly or directly learned with other computer resources. An indirect but highly effective source is a kind of computer game known as the text adventure. Rather than ignoring or condemning the playing and gaming aspects of computer technology, we may view some elements of gaming as valuable for what is learned and, if tapped, could be applied to writing. There is, ir particular, a Boston-based software company known as Infocom which, in 1980, released a game of far-reaching consequences. This game, *Zork,* now the first in a trilogy, is of the genre known as "text adventure." It boasts no eye-popping graphics, and makes not a single sound. The purpose of the game is to acquire as much treasure as possible while you explore a vast underground empire of the now-defunct Zorkian civilization. The unique element of this game, and subsequently of all the games created by Infocom, is the breadth of its vocabulary and the fact that it largely communicates in full sentences. Let me say that again: *in full sentences.* In fact, the game contains, among a host of

others, these responses to players who use fragments: "You must supply a verb!" and "There is a noun missing in that sentence." Ah, responses to warm the heart of any English teacher! What the Infocom people accomplished was to build a program which not only understood but *demanded* correct sentence structure. Its parser (that part of the program which interprets commands) was uniquely complex. In the most recent games released by Infocom, all text adventures, the parser is even more sophisticated. In the original Zork adventures, a command like "Talk to Troll" was accepted, since it contained both a verb and an understood subject. In *Enchanter*, one of their newest, a command like "Talk to Troll," gets a petulant reponse of "This is not a primitive two-word parser; please say what you mean." The player must respond accordingly: "Talk to *the* Troll."

But this is not the text adventure game's most endearing feature. Hours of playing such a game requires hours of reading, and much of that reading must be attentive, lest a clue be missed. Moreover, as the player adventures further into the game, he or she realizes that all is lost unless certain skills are applied consistently. These include accumulation and retention of detail, following directions, comprehending the necessity for sequencing, critical perception, thinking logically, and organizing one's actions to maximize effort. And all of these activities are carried out through manipulation of language, by conversing with a computer. Thus, within a play environment, the student acquires a certain facility with skills that are equally applicable to writing: organizing ideas helps make them effective, use of specific and concrete detail not only makes writing more vivid but more fully developed, thinking logically and working

sequentially create natural transitions from one idea to another. In this way, many of the creative, non-mechanical aspects of writing may be achieved. If, in fact, learning may occur through imitation and familiarity, the text adventures on the computer are worthy of imitation and resources with which the student is happy to become familiar.

Additionally, there are services available nationwide to assist in the writing process. Compuserve is an international network through which computer owners can communicate, exchange computer programs, and otherwise simulate face-to-face contact. For example, I was assisted in gathering some of the information for this paper by Patrick Kelley, on the staff of the American Language Program at Ohio State University, and William Dickey, a colleague at San Francisco State. I have never met either of these gentlemen, nor would I recognize their voices if I talked to them. Yet, I have come to know and admire each of them for their specific knowledge about computers, which they unstintingly share in a Compuserve Discussion Forum for Educators. This Forum can best be described as an electronic bulletin board on which thousands of us post general notices or leave messages for each other. Since all communication is in electronic writing, we take care in establishing personal tone and style. Truly, such an environment is the manifestation of McLuhan's "the medium is the message," and we work hard but enthusiastically at simulating the reality of interpersonal contact in words. Such conditions, which preclude face-to-face contact, inevitably lead to a more careful epistolary style which not only conveys information but also characterizes the author. Patrick, I know, reads voraciously and

actually enjoys transformational grammar; Bill is a poet as well as teacher, and his contemplative moments are supplemented with combing his Shih Tzu's coat. Through electronic communications, we three are like faculty who have shared an office for many years, although we only "met" last Spring. Our discussions range from the intellectually challenging to the casually mundane, a truly comfortable collegiality that, given our geographic separations, would not otherwise be possible. Some educators are now exploring the use of such networks by their classes to establish contact with other students for the purpose of exchanging regional information in historical, sociological, and cultural research.

Compuserve also provides on-line tutorials in writing for all its subscribers. This service, known as the Edutech CAI Library, presently contains three separate services: lessons in Physics, a program which assists the user in authoring courseware, and Effective Writing tutorials. All are written in *Turtle Pilot*, utilizing LOGO, a high-level computer language. Despite the tutorial nature of the Effective Writing modules, the authors did not resort to multiple-choice or drill work; instead, they chose to create a series of questions which, combined with comments and the user's responses, can lead the writer to organize his or her material, to provide details and/or supportive material, and to generally structure a potential essay so that it is clear and developed with appropriate specificity. The authors are Ellen Nold and Sallie Cannom, who wrote the modules in 1973 while at Stanford University. Familiarly called "Spice Programs," the fifteen modules are named after herbs and flavorings; they have been published in a variety of computer

magazines. Some of the programs provide information and identify the steps needed to acomplish various rhetorical modes, such as persuasion, comparison/contrast, and description. Some programs deal with common writing considerations, such as audience identification, logical fallacies, and separating fact from inference; and still others treat matters of usage, such as diction and correct pronoun reference. I have reproduced two sample runs from this program for you to examine at your leisure. Along with a selected bibliography, these are available at the close of the session.

These are well-written programs, and on that basis alone I would recommend them to you. What makes them more appealing, however, is their availability to a wide audience of computer users. Because they are offered on a national network, they are not tied to a particular computer system; Compuserve can be accessed by anyone who owns a computer, a modem (which provides the telecommunicating ability), and a telephone. If the user has a printer, the tutorial session can be saved as hardcopy for review at a later time. Best of all, the tutorials can be accessed whenever it is convenient to the user, even at three a.m., if that's when the creative juices flow. Finally, the program is neither threatening nor demanding, for if the user responds to the queries with nonsense, the program remains uncritical. While this may be perceived as a lack of constructive, specific feedback when the user is working independently, it is not a weakness if the program is used as adjunct, supplement, or complement to classroom teaching. Depending on need, an individual student could be directed to one or more of the tutorials, print out a copy of the session, and sit with the instructor to review the material. What the rhetorical

tutorials do is assist the student in getting started by asking the right questions; it is, in essence, what the instuctor might do if there was enough time to discuss with each student what he or she was planning for the next assignment. Again, the value of the resource is not so much *what* it does, although that is quite good, but *when* it accomplishes its task, for it can be utilized to work wih individual students when they begin working on their assignments.

Still, computers can best serve as a resource in teaching writing when programs tap the high-level abilities of the machine. At present, there are few educational software programs that do this, although there *are* many in business and entertainment. The ideal program is one which takes advantage of the computer's ability to simulate intelligence, thereby providing the student with a companion and partner in the learning process. The sophistication of the machine, after all, allows for complex branching to a variety of alternatives in interactive learning, thus simulating intelligence while retaining the computer's essentially non-threatening, unbiased posture. There are, in particular, two programs which seem to acknowledge and call on the computer's power as a multi-faceted tool for improving writing. These are commonly referred to as "whole-process" programs, since they attempt not to isolate the stages of writing for treatment, but to assist with writing at all stages. Within two or three years, it is likely that more whole-process programs will appear, for they are the natural next evolutionary step in the utilization of computers in writing.

The first of the whole-process programs is called WRITER'S WORKBENCH, a software program developed at Bell Laboratories in New

Jersey for the company's technical writers. Unfortunately, the program only runs on a UNIX mainframe computer, and it has been made available to only one college, Colorado State, where Kate Kiefer and Charles Smith have worked with it since 1981. The program is a collection of thirty modules covering activities from evaluating written material to explaining rules and from permitting changes to the program's usage and spelling dictionaries to storing personal lists of common errors. While originally and most frequently used as a revision program, WRITER'S WORKBENCH is so extensive that it is difficult not to see it as a whole-process program.

To give you an idea of its breadth, let me just list some of its evaluative features: it assesses text abstractness, identifies risky constructions, summarizes stylistic features, summarizes content, performs a stylistic analysis, finds awkward phrases and suggests changes, and provides extended editorial comments. To assist the writer in revising, its Explanation files include information on punctuation rules, a glossary of words often confused in writing, and a description of the standards the program uses to evaluate materials.

What is perhaps best about WRITER'S WORKBENCH is that it deals with the *specific weaknesses of the individual writer*, not the weaknesses common to a group or class of writers. This allows, in the words of Kiefer and Smith, "...[the students to] work on the errors they habitually make [and] they can correct these errors while sensitizing themselves to language." In fact, when students at Colorado State were surveyed five weeks into the semester, an astonishing 75 to 80% of them indicated that they would willingly take *another* composition class if they could use the computer again!

What better recommendation could there be for the program?

The second whole-process program, called WANDAH, is now in use at UCLA where it was developed by a faculty group. WANDAH, which stands for Writer's AND Author's Helper, is the "daughter" of Wilbur, a program that had been developed for a mainframe. WANDAH, happily, runs on the IBM PC, a microcomputer, and is written in PASCAL, a very "English-derivative" computer language. There is a good deal of speculation about its availability for other microcomputers in the near future, given the excellent reviews it has already had. WANDAH is a package which contains a set of pre-writing and planning exercises, a word processor, and a variety of revision aids. That WANDAH addresses all stages of writing from pre-writing to revision is certainly the result of the team effort of the UCLA Word Processor Writing Project, including Morton Friedman, Earl Rand, Ruth Von Blum, and Michael Cohen. The project had the direct involvement of the Engish faculty. As Cohen explains: "The teachers had no knowledge of computers, but they knew how to teach English, and that was an essential point of view. They told us what they wanted, and we gave it to them."

WANDAH is a tool that encourages students to organize their ideas, to write and edit compositions, and to polish mechanical and stylistic skills. The modules were drawn not only from suggestions by English teachers but also from the extensive contemporary literature on teaching writing. More continue to be developed by the UCLA team. The existing modules are: Freewriting, Invisible Writing (to deal with writer's block), Nutshelling (identifying purpose, audience and primary argument), Planning (devising title, thesis, support),

Organizational Review (which includes outlining the paper and identifying transitions as well as electronic "marginal space" for commenting), Stylistic Review (which draws attention to passive constructions, abstract words, and gender-specific words as well as calculating sentence lengths and summary statistics), and the Mechanics Review (which highlights commonly misused words and phrases and some punctuation and spelling errors). All of these modules, as well as those planned (including footnoting and cliche checking) are wrapped around a word processor whose primary attraction is that it echoes the Team's motto: "Find the easy way and speak English." For instance, rather than explaining to students that they are "editing a document," WANDAH says they're "writing a paper." Even better, students don't "Delete," they "Untype" their work.

WANDAH is, presently, the state-of-the-art of using computers in teaching writing. What makes it so exciting is that it neither presumes nor aspires to replace the instructor; control remains in the hands of the teacher while the program provides an array of aids to the student writer. The teacher still has the freedom to make pedagogic decisions, to explain to students what the output from WANDAH means, and to judge its validity as it is produced by each student.

Similar programs are in various stages of completion all over the United States. Of note are: William Wresch's WRITER'S HELPER, for the Apple IIe, which has been in development for more than three years; its approach is similar to WANDAH's although, in draft descriptions I have seen, it contains more modules linked together to deal with a greater variety of approaches to the writing process;

another is Christine M. Neuwirth's **DRAFT**, a computer-based writing aid for teachers who don't know computing, which concentrates its efforts on the prewriting and revision stages, leaving word processing functions to a companion program, SCRIBE. Information on these and other programs can be found in the bibliography I will leave with you.

The computer is clearly a machine which we should not ignore, no matter what our discipline or our emotional response to the technology. That it already affects us is obvious; how we can use it to beneficially affect our students is only beginning to be made clear. Alfred Bork, one of the foremost theorists in computer-based learning succinctly recognizes the strengths of the computer as an instructional medium:

> *First, the computer is an interactive medium -- and interaction is not just a word....We can look at computer material and talk about the quality of interaction....Another strength of the computer is that it can present us with new ways to organize learning. This is probably the hardest thing for the conventional teacher to understand. Often the computer allows entirely different strategies for organizing our material....[Third] is the computer's capability for individualization. If computer material is good, it can really begin to do what we've always talked about in education -- individualize the learning experience. We can make the learning experience different for different people.*

I believe that the greatest challenge to the composition instructor has been that the writing experience *is* different for different people; using the computer can, I think, help us to meet this challenge with greater chances of success.

Newton Writing and Computer

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SOME COMPUTER PROGRAMS USEFUL IN WRITING

Writer's Workbench (Bell Labs)

Seen (formerly *Marsyebb*) (Helen Schwartz,Oakland Univ. in Rochester, MI)

Writer's Helper (Wm. Wresch, Univ. of Wisconsin Center, Marinette, WI)

Wandah (Ruth Von Blum, UCLA, Los Angeles, CA)

There are numerous word processing and spelling checker programs commercially available. You should, before purchasing, read reviews of programs in such computer magazines as *Creative Computing* or *Byte.*

Courseware authoring programs are also numerous, but you should request demonstrations of the programs before purchasing. Programs of the *Pilot* variety are the most adaptable to both drill and dialogue methods.

^^

Copyright 1984 by Sandra S. Newton
Presentation entitled "Computer Resources for Teaching Writing" for the NEJCCC Conference, Newton Center, MA, on October 27, 1984.

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       CAI Libraries
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Select your Educational Level:
   1  Professional
   2  College
   3  High School
   4  Elementary School


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    College Level Tutorials
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   1  Authoring Courseware with
      Edutech's Turtle PILOT

   2  Physics

   3  Effective Writing


Edutech                 Page CAI-80

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  Effective Writing Tutorials
+  +  +  +  +  +  +  +  +  +  +  +

1) Introduction    9) Mace
2) Arrowroot      10) Marjoram
3) Chevril        11) Mustard
4) Chive          12) Nutmeg
5) Cinnamon       13) Paprika
6) Clove          14) Sage
7) Cumin          15) Sugar
8) Curry          16) Vanilla
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THIS PAGE IS THE INTRODUCTION TO THE SPICE PROGRAMS:

Edutech Page CAI-81

EDUTECH PILOT V3.1m
These Effective Writing
Tutorials were authored by
Ellen Nold and Sallie Cannom
while at Stanford University,
Palo Alto, CA, in 1973. These
"Spice Programs" have appeared
in various personal and
educational computing magazines
over the years, and are used
here with the Authors'
permission.
A short description of each
module follows:

ARROWROOT
  How to write a persuasive or
argumentative paper for a
particular audience.

CHEVRIL
  Writing for a particular
audience.

CHIVE
  Fallacies of relevance.

CINNAMON
  A rose by any other name
would smell...?

CLOVE
  Classification and ordering
your thoughts.

CUMIN
  Exploring Classification &
Stereotyping.

CURRY
  Inferences - How we make them
and whether they are warranted.

MACE
  Facts or Reports.

MARJORAM
Differences among reports, inferences, and judgments.

MUSTARD
Non-stereotypical thinking for more interesting writing.

NUTMEG
The use of words as tools.

PAPRIKA
Usage of pronoun reference.

SAGE
Describing the abstract.

SUGAR
What's in a name?

VANILLA
Preparing to write a comparison/contrast paper.

THIS PROGRAM IS CHEVRIL, PART OF COMPUSERVE'S EDUTECH TUTORIALS.

Edutech Page CAI-83

EDUTECH PILOT V3.1m
Hello, what's your name?

>Doc

This program, Doc, discusses how to write for a particular audience. When you type on the terminal, who is your audience?

>myself

Yes, you are the audience. Does anyone ever watch you run these tutorials, or see the output?

>yes

Then they become the audience, too. Do you think about their reactions when you type in answers?

>no

You don't take them into account. Nearly everything we write has an audience beyond ourselves, except for shopping lists and other reminder notes. Can you think of any other thing you might write that has an audience of only yourself?

>journal

What about a diary? Diaries are often written for only our own eyes, but sometimes subconsciously we want others to see them, so we may write things we know would upset or please our subconscious or barely conscious audience.

-4-

When **you** write papers in a class, who is your audience?

>instructor

Your instructor always sees your paper, and it is he or she who must evaluate it. Pick a class for which you have recently written a paper. Type the name of the instructor below.

>Dr. Newton

Did you write your paper so that Dr. Newton could easily understand and agree with your points?

>no

Perhaps you didn't take into account Dr. Newton's attitudes and expectations.
In order to write effectively, we must shape our message so that it can be easily grasped by our audience. Doing so requires that we pay attention to our audience's previous knowledge and predispositions.
Name another audience for which you have written recently.

>Colleagues

How are Colleagues's expectations and biases similar to Dr. Newton's?

>critical

All right. How are Colleagues's expectations and biases different from Dr. Newton's?

>less demanding

All of the people that read our writing expect us to take pains to help them understand us.

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They have different expectations about the types of ideas acceptable to them, the kind of organization that would help them and the kind of language you can use. What would Colleagues's reaction be if you used slang words and misspelled every other word?

>negative

Usually the reaction is one of confusion, chagrin or anger - causing Colleagues to have trouble understanding your meaning, Doc.

You can be individualistic and express yourself, but if you want to communicate, you must take your audience into account and carefully shape your message for it.

If you want to apply some of the concepts in this program to writing an argumentative or pursuasive essay, try 'ARROWROOT'.

Bye for now, Doc.

ERIC Clearinghouse for Junior Colleges
8118 Math-Sciences Building
University of California
Los Angeles, California 90024

MAR 22 1985

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